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Editorial.

BEYOND THE PALE OF CIVILIZATION.

When a boy at a public school becomes very unbearable or objectionable to his fellows he is relegated to what is known as "Coventry." He is looked on, until he reforms, as an unworthy member of the general body, and by abstaining from intercourse and conversation with him, it is sought to punish and bring home to him the outrageousness or dishonourableness of his conduct. Where men gather together in clubs there is a recognized standard of behaviour and demeanour among them. Members who transgress the rules and do not play the game are black-listed or expelled from the club. There is a standard of ethics erected on a higher plane for professional men. Not only are they directed to act honourably towards each other, but they must also use all skill and diligence in prosecuting the calling which they follow. Certain broad yet well-understood rules must govern their actions and procedure, and, in the case of the medical profession, the claim to be attentive, scientific, and humane in dealing with patients and ailing humanity is one which of all considerations is the most self-evident, vital, and important.

Animals often turn on their weaker, injured, and ailing mates and rend and attack them. Savages and barbarians destroy their hindering or aged units. Cannibals kill and eat their prisoners. The laws and usages of civilized life do not appeal to them. The customs and procedure of nations that have progressed along the road of enlightenment, humanitarianism, and refinement are not understood by them, and to preach the doctrines of civilization to them, unsupported by force to back them up, is only to become a prey to their primitive instincts and to be destroyed by them. The only argument they understand is the persuasion of the man with the club, the spear, or the gun. They are beyond the

pale of civilization. Yet even many of the races that we term savage have a code of conduct which seeks to assuage the sufferings of the sick and injured through the ministrations of the medicine man. However ignorant and intellectually dark they may be, they do their best according to their lights to soften the way or delay the departure of their failing ones to the happy hunting ground.

Ruthlessness is the essence of war. The rules of warfare being observed in the fight, it is the duty of the contending parties to use all effort to destroy each other or render each other's aims and objects nugatory or of no avail. The clean-minded and fair-fighting warrior treats with a due amount of mercy and chivalry those whom he has captured, beaten, battered, or bruised.

The silver lining to the horror cloud of war has always been the never-failing kindly activity of the members of the medical and nursing professions. They have risen nobly to the great strain that has been put upon them. The Army Veterinary Corps follows in their footsteps. Absolute self-sacrifice and the surrendering of life itself in the service of humanity have been exemplified over and over again by the healers in this and other struggles between Western nations. The rules of the game of war have been kept well by the majority of the parties to the conflict, but the referees in the shape of the neutral nations have not been strong-handed enough.

Having written so much, we have now to dwell on the actions of a representative of a so-called civilized nation who has lately been guilty of almost inconceivable cruelty and heartlessness—conduct which in this case surely puts him beyond the pale of civilization, and in some respects reduces him below the level of the untutored savage.

Whilst the German Chancellor talks about his country going to war for the protection and unity of his countrymen, offers a German millennium to small nations, and poses as the friend of the oppressed and the enemy of the oppressor, what do we find happening at Wittenberg, a short distance away from Berlin?

Here there were confined 15,000 prisoners in a camp, the British numbering 700 to 800. Typhus broke out among them. Thereupon the German military and medical staff precipitately left the camp, and from December, 1914, to August, 1915, no communications were held between the prisoners and their

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guards, except by means of directions shouted out by the guards or officers from outside the wire entanglements of the camp. No medical attention during the whole time was provided by the German staff. Food was sent into the camp by trolleys worked by winches; supplies were sent down on chutes. Infection was encouraged rather than hindered, each mattress had to be shared by three prisoners, infected mattresses were left or sent back to spread infection, typhus cases were transported on the tables from which the men ate their food. Soap was barred, medical supplies easily obtainable were not granted, and lice and filth covered the poor victims. Six English officers of the R.A.M.C. were sent to the camp at the outbreak of the epidemic, and on February 11, 1915, two of these were taken away to serve elsewhere. Of the four remaining only Captain Lauder survives. Major Priestley, one of the officers taken away, vouches for many inhumanities that he actually saw when he returned to the camp on March 7.

The now notorious Dr. Aschenbach, the German medical chief at the camp, only visited the place once during the course of the epidemic, and for his part (a coward's one) in combating the outbreak he received that besmirched symbol known as the Iron Cross. Terrorizing the prisoners with savage dogs, controlling them with loaded rifles, flogging them with rubber whips, and tying them to posts are among the facts recorded in the report by Mr. Justice Younger, Chairman of the Government Committee on the Treatment by the Enemy of British Prisoners of War.

Now to revert to our opening remarks and point the moral. Do we wish to have the names of the countrymen and allies of Dr. Aschenbach still enrolled and retained in the list of honorary and foreign associates of our profession? Until his name has been expunged for all time from the German *Medical Register*, the Iron Cross replaced by stripes on his back, and a long sojourn in a prison cell given to him, we can hardly consider his fellow-practitioners who do not protest against his villainous conduct as being much less guilty than he himself. We are better unassociated, even in the pages of a Register, with men who stand by unmoved whilst one of their fraternity is presented with an Iron Cross by a misguided Emperor for vile, inhuman, and criminal conduct. We commend these views to the consideration of our colleagues and Council.

G. M.

Original Communications.

A HYDROCEPHALOUS MONSTER (FOAL), WITH A FEW REMARKS ON PARTURITION IN THE MARE.

By FRED. C. MAHON, M.R.C.V.S.
Southampton.

I WISH as briefly as is possible in considering so wide and diversified a subject as parturition, particularly difficult presentations, to describe a rather rare, if not unique case, which came under notice in May, 1912, whilst managing a practice in Sussex. To country practitioners especially do these cases fall in numbers; it is rarely town practitioners have these conditions to combat. In all animals monstrosities occur. I have personally encountered them in mares, cows, sheep, bitches, cats, but only once in a goat. They are good subjects from a photographic point of view. In delivery they often try the best skill, exhaust the physical powers of the giant, and tax the mental capacity of the most experienced.

To encounter them in the young animal about to become a mother is bad enough, but in an ill-conditioned animal, aged eighteen years, who had not conceived hitherto, was my experience. The owner's condition negatived assistance of any value, and the labour fell upon me when in ill-health and at the fall of a long day's work. Unprepared, with no surgical instruments at hand, I fell back upon two pieces of cotton rope, worked assiduously for one and a half hour, and was rewarded by a monstrosity which fairly staggered the owner and myself.

Briefly, I may add the mare had been in labour for some hours prior to my visit to the farm and had been pulled about severely. She was distressed, was groaning, covered also with perspiration, and fell to the ground more than once during the preliminary examination to ascertain the position *in utero* of the foal. I took several minutes, once the mare regained the upright position, to convince myself that the foal was dead, and, further, that I had a malformed skull to contend with.

The diseased condition (pathological anatomy, hydrocephalus) is recognized by a more or less exaggerated development or volume of the cranium, the vault of which has been

elevated by fluid collected in the brain ventricles. It is noted that the distension in some cases has been so slight that the frontal bones are not much raised, whilst in others the collection of fluid has been so great that these and other bones of the cranium are displaced, and the forehead, rising almost at right angles to the face, suddenly reaches an extraordinary height, giving the creature a startling appearance. The hydrocephalous tumour varies in shape as well as in volume. It is sometimes, as was in the case to be described later, quite globular, and protruded so high and so much over the face as to give the physiognomy a strangely human appearance. The sketch I append is a crude one, as I am lacking, unfortunately, in artistic finesse, but I hope it may give my readers some idea of the monstrosity in question.

In rare cases of hydrocephalous monstrosities the skull is narrow but excessively protuberant, involving only a portion of the cranium, at other times it is bilobular, and the divisions may be either alike or unequal in volume.

THE ANTERIOR PRESENTATION; DORSO-SACRAL POSITION.

Downward deviation of the head was encountered in my case, left leg protruding as far as the middle of metacarpal bone *per vaginam*. The right limb downwards, backwards, and could not for half an hour be reached. The cranium pressed against the brim of the pelvis, leaving the dome-shaped head only within reach.

The dorso-sacral position is frequently met with in my experience among the heavier breeds. It is also usually met with in "hydrocephalus," though it is not very uncommon when the cranium is normal and the fœtus well formed. It is usually encountered in the dorso-sacral position, though not infrequent in the "dorso-pubic." It perhaps occurs oftenest in the cow.

The cause is usually ascribed to *post-partum* rupture of the fœtal membranes, as the uterine contractions force the fœtus backwards, and the head is pushed lower and under the neck until it gets beneath the chest, and even abdomen, where it may deviate to one side. The fore limbs are, of course, situated in the genital canal.

The accident is discovered by manual exploration, the fore limbs being followed by the hand; the crest of the neck is found

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pressed against the pubis, while the head can be traced by the ears and the orbits, the face being towards the floor of the uterus, or the hand may discover the nose and mouth inclined upwards at one side of the chest behind the elbow. In this condition birth is impossible, as straining and traction only make matters worse.

INDICATIONS.

When the upper part of the neck alone presents, reduction is still possible, provided no great delay has occurred, no mismanagement by unskilful people has been allowed.

But when the waters have long been expelled, the legs pulled out by amateurs, and the uterus closely applied to the body of the fœtus, the case is most difficult, and then manipulation and retropulsion cannot effect much in many instances. The double neck, as it were, is too voluminous to enter the pelvis, and the longer the pains continue the farther is the head pushed forward from the inlet, therefore away from the reach of the obstetrist. The contractions of the closely applied uterus also render attempts at delivery almost impossible by their paralysing the hands and arm. Large quantities of lubricating warm fluids are recommended. My sheet-anchor is extract of belladonna, which agent I have for nearly thirty years used in the mare, cow, bitch, and cat.

Retropulsion, attempted by one or two crutches applied to the shoulders of the fœtus, not to the neck, while the hand manipulations, aided, if need be, by the finger-hook—a blunt hook inserted on each side of the lower jaw when this can be reached towards the root of the ear or into the orbits—a cord tied round the neck, if it can be passed, and other devices may be tried. Cotton ropes I always use of varying lengths and thickness, and if I do not succeed with these the case, I conclude, is a hopeless one, and I destroy my patient and make a *post-mortem* to convince my client and sceptics that the task of bringing the foal into the world or of successful embryotomy was impossible. Rarely if ever does the dam survive.

It is recommended, and sounds easy, but is time very often wasted, that the animal be thrown on its back. Indeed, the success which has attended this procedure, in many cases reported by veterinarians in all parts of the world, warrants a trial, and should be adopted without undue delay. Very often the altered

FIG. 1.—Shows rough sketch of skull of hydrocephalous monster.

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position of the mother at once disengages the head of the fœtus from its position. If this does not happen, then the other means may be tried as in the standing position.

Pelvic version may be resorted to in some cases, the anterior presentation being converted into a "posterior one."

When reduction cannot be attempted and delivery of the fœtus cannot be accomplished, then the obstetrist has no course left open to him but the adoption of embryotomy.

Text-books and lectures afford one little consolation, and if, as I said before, this procedure be carried out, in the majority of cases, especially in the mare, a true register would show a large death-rate, or such injuries as to preclude future breeding, and a store of future trouble.

Embryotomy recommended by many "should be resorted to early if the fœtus is dead," which is nearly always the case in the mare.

The head may be amputated through the presenting portion of the neck, or the fore limbs may be removed subcutaneously at the shoulders. The latter is to be preferred in the majority of cases—at least, before incision of the neck is begun.

This gives more room for manipulating the body and effecting extraction. In many cases the removal of one fore limb will permit delivery. Whether one or both be removed, it is generally necessary to pass a cord round the end of the neck and pull it so as to bring the head nearer the inlet, where it may be possible to turn it into the genital canal, or at least amputate it more easily.

Anterior Presentation; Extreme Deviation of the Head; Head bent under the Body.

This is an exaggerated but much more serious form of head and neck fixture, especially in the mare, and it occurs in a similar manner to the preceding. The fœtus in the anterior presentation advances to the inlet and the neck, fixed, and consequently the lower part of the head below the floor of the pelvis. This misdirection increases as the uterine contractions force the fœtus backwards, and the head is pushed lower and more under the neck until it gets beneath the chest, and even the abdomen.

A few particular now *re* the dimensions of the hydrocephalous monster's head may be of interest. From junction of frontal to occipital bone (posterior dimension) $17\frac{1}{2}$ in. (longitudinal measure-

ment), transverse measurement 13¾ in. A football cut into equal portions transversely and placed on a normal fœtal skull is as near the mark as is possible, and will afford some idea of the case and the marvellous result of extraction.

Contrary to the majority of cases encountered, instead of the cranial bones being soft and thin, this skull was hard as adamant, and the sutures found usually in the fœtus entirely obliterated. Total ossification of the sutures.

The foal, too, has enormously developed, although the owner informed me the sire was by no means a large animal.

The dam was truly a medium-sized cart mare of nervous temperament, with a sprinkling of hunter blood.

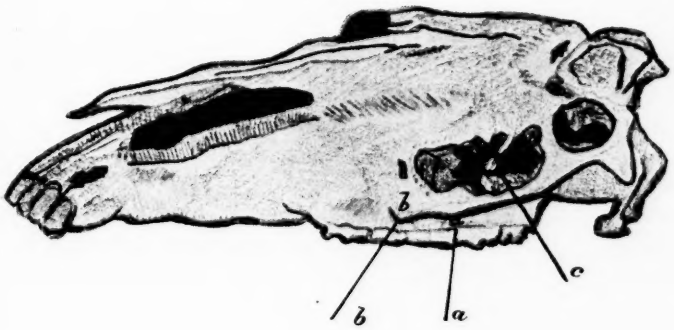

FIG. 2.—The normal skull.

Contrary to advice and to all reason, the callous farmer had the mare at work within three days, his excuse when I called to see her being "Well, she ate well, suffered no pain, or at least I did not think so, therefore I put her to work, and no harm has resulted."

Now it has struck me, and doubtless has been the experience of many practitioners, how hard-worked, aged, and enfeebled animals will bear the pains of maternity far better than stronger-looking, better-cared for, and less hard-worked animals suffer acutely at birth-giving, and yet make speedy recovery.

In passing I note that in the mare I have not yet seen a case

of torsion of the neck of the uterus or of the uterus (body) itself in a mare, but in the cow several, and been highly successful in effecting delivery and saving of life, even in a few instances by the rolling process, tersely described in Dr. Geo. Fleming's "Veterinary Obstetrics," and faithfully portrayed by Mr. J. M. McGillivray, M.R.C.V.S., of Banff, many years since.

Does physiological difference of structures and anatomical conformation of the cow render her more prone to twist of the neck of the uterus as compared with the mare?

In a busy practice one cannot always find time to search past records, but I should indeed be pleased to learn if any of the readers of THE VETERINARY JOURNAL scanning my article have seen torsion of the neck of the uterus in the mare, and how delivery was or is effected.

Again, there are two schools of thought and of procedure *re* the removal of placentæ in cow and mare. Should these be removed early or await Nature's efforts, supplemented by tonics, ecbolics, &c., to be cast off? *Re* also disinfection of the womb after delivery, is it wise or otherwise to disinfect the womb immediately or wait some hours, or even days?

My treatment is to disinfect immediately, but believe more in Nature to expel the placenta than to remove them quickly. The agents I have used as disinfectants are few—kerol warm and chinosol are my sheet-anchors, next perchloride of mercury, and even quinine sulphas in the days before prohibitory prices were in vogue.

Oil of eucalyptus, with equal parts of olive oil, after first syringing uterus with one of the afore-named disinfectants, has served me well. After waiting an hour, removal of fluids by syringe by hand, or by soft cloths inserted, or sponge mopping up, is practised.

In the mare I usually allow twenty-four hours to elapse, in the cow three to five days, before actively interfering.

Recently I had a case where twin calves were aborted in a decomposed state. Membranes retained twelve days. Removed. Feared septicæmia. Resorted to usual methods, also hypodermic injections of quinine and acid nit. hydrochlor. dil., and saved my patient.

I always insist upon removal of membranes from the byre, stable, &c., and thorough cleansing of the same, also keep the

animal standing for a few hours, if strong enough, without bedding, on a sprinkled floor of chlorinated lime.

For cases of monstrosities one cannot find any illustrations better than those of Dr. Fleming in "Veterinary Obstetrics," especially the late edition, corrected, &c., by Professor J. Craig, M.A., M.R.C.V.S.

Lacking, unfortunately, the means, and being also a poor artist, I append with apologies a crude sketch of the monstrosity I encountered, and hope, if ever similarly placed, to be as successful furthermore to have at least sober assistants to help me.

DEATH FROM LIGHTNING STROKE.

By H. A. REID, F.R.C.V.S.

It was reported to me in the morning following the night of a brief but severe thunderstorm that two cows had been found dead in a field and that several others were ailing. The owner suspected some form of poisoning, but also considered that lightning stroke might have been the cause of the sudden deaths.

I proceeded to the farm to investigate, and found two fine cows which had been in full profit lying dead in an open field close to a barbed wire fence.

There was no outward indication of any injury, save a small hole in the right ear of one of the animals, similar to what might have been produced by a high velocity bullet.

On removing the hide from this cow I found a very marked engorgement of the venous system. The jugular vein stood out as if injected, and on dividing the vessel the uncoagulated blood escaped with some force under pressure. Rigor mortis, which under ordinary circumstances should still have been present, did not exist, the limbs being pendulous and easily bent at the joints. Decomposition seemed already to have set in. The whole of the muscular tissue of the neck and fore limb of the right side was deeply congested and blackened. The tendinous portions of the musculature throughout the body showed numerous hæmorrhages, but these were not present on the serous membranes. The heart appeared dilated, and was filled with partially coagulated blood. The lining membrane of the abomasum was

slightly inflamed. The liver was soft and very friable. The remaining dead cow had evidently received the current about the region of the jaw. The muscles in this situation were swollen and discoloured, being similar in appearance to the above description, only to a more limited extent. The most striking feature was the intense venous congestion of the subcutaneous vessels.

I looked through the rest of the cows composing the herd, but they seemed to have recovered from the shock or fright which they had received. The dead cows had been grazing in an open field close to a wire fence. Both were long-horned beasts. These circumstances may have contributed to their untimely end.

Although there is probably nothing unusual in the *post-mortem* appearances recorded, I subscribe them in the hope that the information may perhaps be of some interest and value to veterinarians who are called upon to investigate similar cases of sudden mortality of unknown origin.

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General Article.

CLINICAL NOTES ON CONTAGIOUS MASTITIS.

By C. J. SANDERSON, M.R.C.V.S., and J. BURTON CLELAND, M.D., Ch.M.

The appearance of symptoms cannot be described as constant either in their onset, nature, or severity. The disease would appear to occur at any time during the lactation period. The time of year and climatic influences seem to have little or no effect on its production. Neither excessive dryness nor floods appear to influence its spread. Deep milking cows with large, well-developed udders and teats are the most susceptible, but heifers on their first calf frequently get the disease in an acute form within a few days of calving. During the drying off process many cows are said to contract contagious mastitis; it is very probable, however, that the majority of these had been affected for some time previously, and the apparent onset of symptoms is due to the longer time from one milking to another which permits of a greater multiplication of the streptococcus in the gland, and allows these to reach portions of the gland which, during milking twice a day, they do not reach. Our experience shows clearly that in the mild type of disease so long as thorough milking is practised twice daily it is quite the exception to find many clots in the milk. On the other hand it was found that missing one or two milkings caused many clots to appear and the affected quarters to become hard, hot and painful. Thorough milking again twice a day speedily caused these symptoms to disappear. The value of careful milking and equally careful drying off can hardly be too strongly impressed on the farmer.

Paths of Infection.—It is generally conceded that the organism reaches the sinus of the udder by way of the teat duct. An attempt was made to demonstrate the presence of the streptococcus on the teats by means of swabs passed over the teats of both healthy cows and those affected with contagious mastitis, but in no case did Dr. Cleland succeed in isolating the *Streptococcus mastitidis* from sterile milk inoculated with these swabs.

Any injury to the udder, and more particularly to the teats, is a great predisposing cause to an attack of disease. On some

badly infected farms, if a cow's udder is badly bruised or torn, the injured quarter will certainly be the seat of an attack of contagious mastitis.

Sore teats such as one usually finds in dirty dairies appear to be an equally certain predisposing cause.

In H.'s outbreak all the first eleven cows affected had badly chapped teats. Our own experimental cows support the theory that an injury to the udder is a great predisposing factor in determining an attack of contagious mastitis. Thus, Cow S sustained a wound of the teat from a piece of barbed wire, and within seven days developed the disease. Cow E had sores on the orifice of all four teats before developing the disease. The scabs had to be removed by the milker before any milk could be extracted. She developed the disease in every quarter.

In both cows (S and E) Dr. Cleland found the *Streptococcus mastitidis* in samples of their milk.

Incubation Period.—The shortest incubation period met with was the case of a heifer which contracted contagious mastitis within four days of giving birth to her first calf.

Recent experience goes to prove that the disease may be latent for many months before clinical symptoms developed. Our attention was first directed to this point from the fact that a cow showed the disease under the following circumstances:—

This cow was purchased by a convent some two weeks prior to calving, and five weeks after calving developed an acute attack of mastitis. This case is of interest, as the cow came from a badly infected herd and the idea of infection after reaching the convent cannot be entertained for a moment. The cow was kept by herself in an enclosure which rendered any contact with other cows impossible, and was milked by a man who had nothing to do with any other cow. The organism must have invaded the udder during a previous lactation period. In such cases it is usual for the cow to develop a more or less acute attack immediately after calving, or to come into milk with one or more quarters "blind." In this case the cow milked perfectly for a period of five weeks before developing the disease.

Thirty apparently healthy cows from a farm on which the disease had not previously existed were, owing to drought, placed on a badly infected farm (January 31). On the day of arrival a quantity of milk drawn from every quarter was taken

and submitted to Dr. Cleland, who reported that four showed abundant streptococci, agreeing with those of contagious mastitis, while six showed abundant and one a few streptococci, not specially tested. On February 24 eight cows showed symptoms of the disease, having swollen, inflamed and painful quarters, with milk more watery in appearance than normal, and containing many clots.

Of the eight affected cows, only one showed the specific organism in the milk on January 31.

The fact that eight cows developed the disease twenty-four days after first exposure to infection is somewhat striking. Mention has previously been made to the presence of the *Streptococcus mastitidis* in the milk of cows that are apparently quite healthy, and if the presence of this organism in the milk of a cow is to be regarded as a potential case of contagious mastitis then the incubation period may be of many months' duration.

To clear up this most important point it will be necessary to examine many samples of milk taken from cows in districts where the disease does not exist.

The Types of the Disease.—As a result of our experience it is possible to divide the disease into three distinct types, viz., mild, acute, and peracute. In the mild type, which is in practice often undetected by the farmer, there is a slight alteration in the appearance of the milk, which may appear more watery than usual, and the presence of a varying number of small clots can also be detected if carefully looked for. To do this the first milk is drawn into the palm of the hand and allowed to run off, when a number of small clots will be found adhering to the skin. After the first few draws the milk will become normal in appearance. Milk drawn into a test tube will appear quite normal, but after standing for a few hours, in addition to what may appear to be an unusual quantity of cream, a deposit is sometimes found extending as high as one-third up the tube. It seems quite possible that these changes in the milk are not accompanied by any swelling of the udder. If swelling occurred it must have been slight and subsided very quickly in some cases observed by us. Where swelling was observed it was characterized by being hard and by its rapid disappearance. These cases were marked by the rapidity with which the milk regained the normal in appearance but not in quantity. The constant reference by

farmers to weak quarters in their cows is clearly due to this mild type, and an examination of the quarter generally revealed an area of fibrosis.

Relapses were almost constant. While the presence of an area of fibrosis in these cases was constant its location was by no means so. The most usual seat was found to be in the parenchymatous tissue just above the milk sinus. It was also found at the base of the teat and in the teat duct.

In a few cases which came under our observation, cows which showed this mild form when being dried off developed a severe form on again coming into milk after calving. In this type the cow's general health is unaffected.

In an acute case, premonitory symptoms are always shown, varying in severity with the nature of the coming attack. There were one or two exceptions to this, however, in which the constitutional symptoms were most marked, while the udder lesion was comparatively slight. Rigors, staring coat, cessation of feeding and rumination, increased respiration and pulse, and sometimes, though by no means invariably, a rise of temperature above 103° F. are the usual symptoms heralding an acute attack. Such symptoms are not, as a rule, noticed by the farmer, who usually states that the cow went out overnight in good health and was only found to be affected at milking-time in the morning. In an acute attack, the changes in the milk may vary greatly. The milk may be clotted and stringy but still present the appearance of milk. On the other hand, the secretion drawn from the udder may be a thin watery fluid of a greyish appearance, quite unlike milk, with numerous clots in it. Cases showing watery milk with yellow clots are more rare. In some cases the stringy curds can be drawn unbroken through the teat to the length of several inches. In severe cases the amount of fluid, whatever its appearance, capable of being drawn from affected quarters is always greatly reduced in quantity from the normal milk yield. In one case (S.'s herd) there was total suppression of milk secretion for forty-eight hours, the udder resembling that of a dry cow. At the end of that time secretion was re-established, but two quarters showed a thick, turbid, purulent fluid. Examination of the fluid revealed the presence of the *Streptococcus mastitidis*.

In other severe cases thick yellow clotted material of the

consistence of boiled custard is all that can be extracted, while frequently cases will be found in which the only fluid which can be obtained from the udder has the appearance of sherry wine.

In all varieties of the disease it is usual to find only one quarter affected at the onset; more rarely two quarters are implicated. Isolated cases are found where all four quarters are simultaneously affected. Sometimes the disease is confined to the quarter originally attacked, but it must be considered the rule rather than the exception for the disease to spread to other quarters. One cow contracted the disease in one quarter; fourteen days later a second quarter was affected, and ten days later a third. The fourth remained healthy during some months that the cow remained under observation. Extension of the disease to other quarters is not marked by the constitutional disturbance that appears during the original attack. This is correct when the type remains constant, but in some cases the disease in extending shows a greatly increased virulence. As an example of this, a cow, the property of Mr. S., developed an acute attack of mastitis in one quarter, and a bacteriological examination of the secretion revealed the presence of the typical organism. Constitutional disturbance was not pronounced, and the supply of milk from the healthy quarters but slightly diminished. Fourteen days after the original attack this cow was brought into the evening milking showing the following symptoms: Respirations sixty to the minute, rigors, frothing at the mouth, staring bloodshot eye, temperature 105·4° F., an occasional soft cough, and a staring coat. She gave less than a pint of milk from the three quarters. On the following day the disease appeared in the three previously healthy quarters, which became intensely hard, swollen, and painful, while the secretion was thick, yellow, and purulent, with a very repulsive odour. The owner finding the cow down and apparently unable to rise, promptly had her destroyed. He informed me that several similar cases had occurred on his farm. Unfortunately no samples of secretion from the second attack were taken for bacteriological examination. These cases are of peculiar interest as they show that a previous attack of undoubted streptococcic origin in one quarter confers neither immunity from nor resistance to a peracute attack in other quarters, the cause of which may or may not have been due to the *Streptococcus mastitidis* alone.

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In the peracute type premonitory symptoms are well marked. The cow appears depressed, stiff in her movements, and stands in the paddock without feeding or ruminating. The attack is ushered in with rigors, increased respirations, rapid pulse, rise of temperature to 106° or 107° F., and greatly diminished milk secretion. Frequently an offensive diarrhœa develops. When brought into the milking shed the cow will be noted to have a staggering gait, with hardly sufficient strength to drag her hind legs over a rail 6 in. high. The eye has a sunken appearance. One or two quarters will be found intensely hot, hard, and swollen, the swelling in some cases extending as far forward as the navel, and almost to the root of the tail. It is difficult to extract any fluid from the affected quarters, and after manipulation and stripping movements all that can be obtained is a certain amount of purulent matter, which at first resembles inspissated pus, but which has a tendency to become more fluid after the sinus has been emptied. Usually the cows will lie continuously for forty-eight hours, neither feeding nor ruminating. Palpation of the udder causes pain.

The sequel of such cases as were observed by us is invariably abscess formation, which in the vast majority of cases extends to other quarters of the udder, rendering destruction almost imperative. In some few cases, after the lapse of a week or ten days, the cow's health appears to improve, but returning health caused little improvement in the milk yield. Cows affected with this type of mastitis become emaciated very rapidly. It may be a coincidence, but after the commencement of vaccine treatment in any herd no further cases of the peracute type occurred.

The following further work is suggested: (*a*) Examination of milks for the presence of the streptococcus from herds in districts where the disease does not exist. (*b*) Prophylactic vaccine treatment of heifers, and subsequent exposure to natural infection.

The Streptococci of Contagious Mastitis.

By J. B. CLELAND, M.D., Ch.M.

Our investigations into milks obtained from cows actually suffering from contagious mastitis, and from other cows in infected dairies, show the great prevalence of streptococci of a

more or less uniform type. Morphologically the streptococci varied considerably in size from time to time, apparently as a result of differences in media, usually forming long, sometimes exceedingly long, chains. Grown on peptone waters, to which various sugars have been added, they gave acid on glucose, lactose, saccharose, and usually on salicin. They did not give acid in mannitol, dulcitol, or, as a rule, on inulin or raffinose. They produced acid and clotting in milk.

In examining cows in which contagious mastitis is marked —the quarters being hot, swollen, and indurated, and the milk being watery, with clots—streptococci, as a rule, have been abundant. In some of the worst cases, however, the fluid on plating has, strange to say, been found sterile. Apparently the intensity of the infection had destroyed the invading organism. It was also noticed that many cows which showed no evidence clinically at any time of contagious mastitis, nevertheless might harbour these organisms in large numbers, in one or more quarters, over a considerable period of time. Occasionally such carrier cases would develop slight evidence of mastitis—swelling of the udder, and the presence of some clots in the milk. In these results it would seem that just as in diphtheria in human beings, carrier cases of contagious mastitis exist amongst bovines. Just as in diphtheria in human beings, there are cases that lead up to clinical manifestations of the disease, so in bovines. But we have so far not ascertained why a cow, which has harboured streptococci, apparently without ill-effects, for perhaps some while, should suddenly develop contagious mastitis; or why a previously unaffected cow should, on being infected by the organism, show in one instance clinical evidence of contagious mastitis, and in another case no sign or symptom of the disease whatsoever. It is possible that the property of this organism to produce clotting in milk may have something to do with the question. If the udder is systematically emptied twice a day, and the majority of the streptococci escape with the milk, the organism would have little opportunity of multiplying locally to a sufficient extent to produce clots of milk within the udder. If, however, only portion of the milk is removed twice a day, the quantity remaining would presumably be slightly acid, and the effect of the growth of the streptococci would really be half-way to the formation of clots. The presence

of a large number of streptococci in this milk would also seed well fresh milk as it collected, so that there would be a distinct tendency to the formation of more acid, and finally clots would occur if the udder had not been emptied. It is possible, therefore, that careless milking in this connection may be a predisposing factor. Slight injuries may also, perhaps, play a part. Further, the invasion of the finer ducts by the streptococci may render these organisms less liable to be dislodged, and their multiplication there may lead to the formation of small acid clots, which likewise would predispose further to the disease. Once clots have formed in any part of the udder, though they may to a great extent escape during milking, there would still be a tendency for some to remain, with a gradual aggravation of symptoms. These views are purely theoretical, as so far we possess no evidence to support or controvert them.

Two sets of experimental investigations have been specially conducted upon contagious mastitis. One of these consisted in attempts to cure cases of contagious mastitis by means of the injection of a sterilized vaccine of the streptococcus, and the other was an attempt to immunize animals by prophylactic doses of similar vaccines. The results of both these sets of investigations are, on paper, by no means satisfactory. On the other hand, the clinical results obtained impressed the owners of herds in the neighbourhood to such an extent that they have asked for curative and prophylactic vaccinations to be made upon their herds. The general impression left upon us has been that the use of the vaccine has diminished the severity of actual cases, and has brought about a more rapid cure than was otherwise to be expected without, however, having a corresponding influence on the streptococci present. Similarly, a protective vaccine has not prevented cows from contracting mild forms of mastitis. Vaccines can hardly be expected to exert much influence upon an organism multiplying freely in the milk itself. All it can be expected to do is to so protect the tissues of the body that invasion by these organisms from the milk is diminished. One therefore might expect to find vaccine treatment of clinical value but of little use for the elimination of organisms that were actually multiplying in the milk itself.—*Report of the Government Bureau of Microbiology, New South Wales.*

FIBROUS OBSTRUCTION OF THE TEAT DUCT.

By Professor L. A. MERRILLAT.

Chicago.

The phrase "stricture of the teat" is usually applied to this condition. It is too well known to require an introduction. Practitioners detest it, and writers either ignore it or else pronounce it incurable after enumerating various very ineffectual plans of attack.

Here is a benign, local, accessible condition that seem to baffle us so completely as to threaten our surgical enterprises with ridicule.

Steffin, whose latest book is given as the last word in cattle therapy, pronounces all stricture of the teat as unfavourable, except congenital atresia of the teat orifice and acquired stricture conveniently located near the extremity of the teat. All others are refractory, and should not be meddled with except at the owner's risk.

The fact that an animal so affected, no matter how valuable, is forever doomed as a sound milker seems to be an exceedingly good reason why veterinarians engaged in practice among dairies should work out some definite procedure that will bring this annoying condition into the group of curable diseases.

Several times the writer has attempted to excite some general discussion of stricture of the teat in meetings of veterinary associations. At every time the attempt failed to bring out any particular interest. The disease was simply passed off as a nasty one that could not very well be handled with any degree of satisfaction. The means employed almost universally were slitting operations with various instruments passed into the teat duct. Some have even advised a cautery, but no veterinarian to my knowledge has ever claimed even a fair degree of success with any of these operations.

The only experienced veterinarian known to me who referred to this condition as a simple matter is Dr. A. M. Wray, formerly of Richmond, Illinois, and now of Denver, Colorado. From the wealth of information he accumulated after thirty years of successful practice amongst dairy animals, he announced without equivocation that stricture of the teat is amenable to simple ablation of the growth through an invading incision made directly

over it. The only ones he feared were those located high up in the galactorforous sinus, and especially when these are complicated with fibrous bands stretching across the sinus.

He claimed that the secret of success was surgical cleanliness, and the open wound that was left to cicatrize without sutures. Suturing of the wound he found dangerous on account of the certainty of serious complications from infection from within. On the contrary, if the wound was not infected from handling and the milk was allowed to flow out unobstructed normal cicatrization followed. He advised careful milking or catheterization and wiping of the wound daily with tincture of iodine as the after-care.

Coming from a reliable source—a modest man of exceptionally wide experience—these reports have always impressed me as especially significant, but as no corroborating evidence had ever come to my notice, and as veterinarians assembled in meetings seemed to doubt the wisdom of the procedure, no other effort was ever made to give the method further publicity. Recently, however, three cases thus treated have come under my personal observation, and the good results leave me no other course than that of recommending the method as worthy of an extended trial.

Case No. 1.—A heavy milking grade Shorthorn was found to be difficult to milk at one of the hind teats, and the veterinarian called in attendance found a small nodule located three-quarters of an inch from the teat orifice. Without interfering in any way with the condition, he called me to operate in the manner I had suggested to him on several occasions. The cow was alone in a small pasture when we arrived. She was cast and tied with ropes, the udder washed with mercuric chloride solution, and then painted with tincture of iodine. The teat being long, we found it possible to manage the blood by applying a tape Eschmark. A 4 per cent. solution of cocaine hydrochloride was injected subcutaneously at the proposed point of incision. The teat was grasped with the left hand and pressed to tense the skin. With one deliberate stroke of a sharp scalpel an invading incision was made right into the duct. The knife passed right through the nodule, cutting it in two unequal parts. By stretching the wound open with the thumb and finger of the left hand the bisected nodule turned upward into plain view. It was a whitish wart-like affair that was rooted firmly into the mucous membrane.

With the Mayo scissors the two portions were snipped off without difficulty. As there was some bleeding after removing the tourniquet we replaced it, with instructions to remove it in two hours. The wound was dusted with iodoform and left open. Each day the veterinarian in charge dressed the wound himself with tincture of iodine and dustings of iodoform, and at the same time catheterized the milk. There was a leakage of milk for ten days, but the wound behaved without serious reaction, and after two weeks normal milking was resumed. I saw the cow three months later, and as the veterinarian was not present I had difficulty in finding the previously affected teat.

Case No. 2 and *Case No. 3*.—As these cases were similar ones a single description will answer for both. Both were grade Holsteins, and both were affected with a single nodule the size of a small hazel nut right at the very base of the teat. Milking was impossible except with a catheter, which had been passed frequently during the preceding days. There was some local inflammation from the catheterizations and some swelling of the quarter indicating mastitis. The cows were tied with ropes in the recumbent position, cocaine injected subcutaneously, and an incision $1\frac{1}{4}$ in. long made into the duct and sinus. In both cases the nodule was again bisected into two unequal parts. Blood was baled with cotton sponges, and each half of the nodule was grasped with a forcep and drawn outward as it was snipped level with the scissors. Two small vessels in the subcutem were picked up and twisted, but no other attempt was made to arrest the bleeding, which was somewhat annoying but not harmful. The same after-care was recommended, but in these cases it was entrusted to the owner.

The local reaction owing to the pre-existing inflammation caused by the teat syphon and the mastitis was greater in these cases than in number one, and besides, the after-care was less intelligently carried out, but in spite of these facts a perfect recovery followed both of these operations.

Extravagant claims should not, of course, be made from this small experience, but when these three cases are coupled with the reports of Dr. Wray our optimism increases.

Hard Milkers.

Wray also transformed a "hard" milker into an "easy" milker by simply rimming out the orifice with a very fine

bistoury. The teat is cocained, the bistoury passed into the orifice a quarter of an inch or more, and then a thin slice of skin and mucous membrane is rimmed out of the meatus. If too much is removed the teat may leak for a short time, but even this sequel is transient.—*American Journal of Veterinary Medicine.*

LACTIC ACID BACILLI IN THE TREATMENT OF WHITE SCOUR OF CALVES AND OF INFECTIVE PROCESSES IN MAN.

By J. B. CLELAND, M.D., Ch.M.

In 1909 the occurrence of white scour in calves at the Berry Stud Farm was brought under our notice. As the result of a visit to the farm, in company with one of the veterinary officers on the stock branch, I suggested that the effect of milk soured by lactic acid bacilli might be tried. The particular type of organism selected was one of the ordinary stock butter starters of the Bureau. Mr. Quirk, who was in charge of the farm, soon had an opportunity of testing this remedy on three calves, which were badly affected with white scour. After giving a dose of oil, followed by barley water for thirty-six hours, the calves received equal parts of milk and barley water with lactic acid bacilli added. The calves made rapid recoveries and were cured, leaving no appearance of the usual emaciated condition that is generally noticeable in recovered calves. Besides the three calves severely affected, there were eight others that were slightly affected. These also made satisfactory recoveries.

The apparently satisfactory results obtained in these cases led, chiefly through the instrumentality of Mr. Quirk, to applications being received from various dairymen in the South Coast whose calves were affected with white scour. To all those seeking help in this respect cultures of lactic acid bacilli were submitted, with the following directions for using them:—

"Prepare a pint of fresh milk by boiling it, and then cooling to about the body temperature.

"Put into it the culture of lactic bacilli supplied—contents of one tube to each pint of milk. (To open the tube, mark the glass with a file, cut and break.)

"When mixed, the pint of milk should be put in a warm corner (of the kitchen) for about twenty-four hours.

"This will furnish enough to add to the rest of the milk which forms one feed for the calf. Six tubes will be forwarded each day, being thus enough for six calves with two feeds a day each."

In several instances replies of a very satisfactory nature have been received from persons using soured milk. Mr. Quirk has had no further trouble with this disease; as the symptoms of white scour manifest themselves he sends for cultures of lactic acid bacilli, and has so far easily controlled any outbreaks.

During the year Mr. T. Kennedy, of Reidsdale, asked for cultures in April and September. In three separate outbreaks in which he used cultures forwarded by us he has described his results as "splendid."

The following letters may be quoted in more detail as indicating that there seems to be some distinct value in this remedy, although it must be pointed out that so many factors enter into the question that the remedy can still only be considered on trial. Naturally those persons to whom success has followed its adoption attribute the good results to the remedy entirely, but I would like to emphasize a note of warning—the question must be considered as not as yet definitely settled.

Mr. T. C. Handebo, of Llangothlin, writes: "A line in reply to your letter of November 2 *re* lactic culture, I will speak of it truthfully as I found it, it is the best remedy I ever had the pleasure of using for white scour in calves. Before receiving the culture I had sixteen good calves; ten of them got white scour, and from that it turned to blood scour. One of them died, and five out of the other nine were in a dying condition. I tried all old remedies which were a success in previous seasons, but seemed to be a failure this time. After using the lactic culture as directed, I had no more bother with them. Sometimes some of them have a loose healthy green kind of scour. They might be like that in the morning, then quite right at feeding time at night; I do not take any notice of that. I am feeding twenty calves now, and had no trouble with white scour since you sent me the culture. Before getting or using it my patience was quite exhausted."

In another letter from Mr. Handebo, he says: " . . . wish to state that I have had the same good results with your

lactic culture (B/M. 12/7314) given to my calves. I have not lost any calves with scour since I used the good remedy. At the end of this month I will write to you again, and I think by that time I can ask you to cease sending the lactic acid culture, for I think they will get along all right then . . ."

Another correspondent, Mr. Giles Moore, of Guyra, writes: . . . "Having given your lactic acid culture for scour in calves, I can say that it is the best thing I have yet tried. We have lost two calves only out of forty-four. Please do not send any more, as the calves have all grown up. Thanking you for past favours . . ."

For human diseases a certain number of cultures have also been issued, and, especially in intestinal conditions, some good results have ensued. In a case of sleeplessness, possibly due to chronic intestinal toxæmia, some distinct benefit was found as well as in other similar conditions. At Dr. Bradley's suggestion the injection of soured milk cultures in cases of gonorrhœa was tried with apparently good results. In one or two cases of chronic sinus infection, when the cultures were injected, no good results seemed to follow.—*Report of the Government Bureau of Microbiology, N.S.W.*

Clinical Notes.

ANOREXIA IN THE HORSE.

By G. MAYALL, M.R.C.V.S.

I HAVE recently had two troublesome cases of what I have termed anorexia for want of a better descriptive name. Possibly they may have been cases of passive congestion of the liver, but in neither case was any jaundice shown, but in one patient there was some tenderness and dulness exhibited on percussion over the liver region. Both patients were black in colour, one being a mare and the other a gelding. Both had been losing condition gradually for some weeks, and finally ceased eating altogether. On examination there was no rise of either temperature or pulse, coat staring, extremities and ears somewhat cold, thin condition, and some scabby sores about the neck and hind legs. Corn food and hay, although good in both cases, were absolutely refused, but water was taken in moderation. The pulse of both patients was regular, but so weak as to be almost imperceptible. Neither of them looked fit to stand a dose of physic. Balls of nux vomica and calomel, drenches of acid nitro-hydrochlor. dil. and quinine, ounce doses of Gregory powder in quarter of a pint of whisky, &c., were given. The passage of regular motions, which had been absent for one or two days at a time, was thus re-established. It cannot, however, be written that the drugs given brought about much improvement in the appetite. Under their influence the patients began to eat small quantities of food half-heartedly and gingerly, but they progressed but slowly. Carrots were now obtained, and cut into thin strips lengthways and mixed with corn food in a bucket, which food had been previously moistened with linseed mucilage. Gradually both subjects came on to their usual consumption of food and got back their condition, and both are working again. The duration of treatment and nursing lasted two months in each case. Carrots were given in the bucket rather than in the manger, so that they could not be easily eaten and the corn food discarded. One patient could find the carrots in a trice when given with corn in the manger, and would have only consumed them if they had not been cut into very thin slices, put in a bucket, and intimately mixed with the

corn. Without the carrots it is doubtful if the anorexia would have been overcome. Given in moderation, they are very valuable in such cases. Given in excess, I consider I have seen horses killed by them. Other observers have suggested that carrots contain a poisonous vegetable alkaloid which acts ultimately on the heart, causing syncope, and I remember a case well which used to have a bucketful and a half of carrots a week, where on *post-mortem* nothing could be found but indication of sudden heart stoppage, the horse dropping dead in the stable. There was no organic disease of the heart.

Cases of anorexia in the horse often cause owners to be troublesome to veterinary surgeons, and the cases themselves are frequently slow and annoying ones. These have been recorded to show a way out, and if the veterinary surgeon can give the carrots himself in the way indicated and note results, he will often be repaid for his trouble.

AN INTERESTING AND OBSCURE CASE.

By JOHN McBIRNEY, M.R.C.V.S., M.P.S.I.

I was lately called in to see a horse. This animal showed signs of wasting, and I understand from its owner he noticed that it had been failing in flesh during the past three months. On being taken from the stable in the mornings it was very stiff, but after walking a short distance it would get better, and be able to do its daily work as usual. The horse got worse, and when I visited him he was standing, frequently attempting to urinate, bending so as almost to touch the ground with his abdomen, and then he would resume natural posture without passing any water. Patient had profuse salivation from mouth. Temperature 104°, respirations 56, and pulse steady. I gave a draught that seemed to give relief. He now became quiet, lay down, and fell asleep. In about an hour I saw the horse again. He had same symptoms as before. Temperature now 99·4°. Subject died that evening. I conducted an autopsy. I hope to send to the publishers what it revealed. Meanwhile, I would like to know the views of your readers.

RESULTS OF AUTOPSY.

There was a healed rupture about the size of a florin in large colon, also a peritonitis healed about size of the palm of hand. On further examining the large colon, about 2 ft. away from healed rupture there was another rupture recent of somewhat similar size to healed one, and a fairly sized patch of peritonitis. On the gastric mucous membrane there were patches of a peculiar reddish colour. On manipulating some membrane came away. Other patches were apparently healed, and did not come away on manipulation. The other organs and membranes appeared healthy.

JOHNE'S DISEASE IN *THE DOG*, OR WHAT?

BY HENRY B. EVE, M.R.C.V.S.
Folkestone.

Subject.—A pedigee brindle bulldog, 3 years old, in poor condition.

History.—Purchased by my client from an officer going to the Front through the medium of a doggy journal. The animal arrived in due course, after a long rail journey, in a very weak, emaciated condition.

Symptoms.—The dog appeared unthrifty, tucked up in flanks. The appetite was unimpaired, in fact, the dog ate ravenously, seemed never satisfied, and I suspected that the cause was due to "worms." The animal had a staring coat, itchy condition of the skin, which emitted a peculiar odour, somewhat like "urinous eczema," muzzle moist, eyes bright, but rather sunken from the absence of intra-orbital fat, visible mucous membranes were pale, anæmic; anasarcous œdematous swellings in the "inter-maxillary space" and under the sternum, intense thirst, but no fever present. The fæces were frothy and full of air bubbles, and contained undigested particles of food. The diarrhœa was of an intermittent character, and recurred every three or four weeks at more or less regular intervals. The pulse was weak and faster than normal, and the cough present was exactly like a tubercular patient. The dog moved with a straddling gait, arched its back, and at times urinated like a bitch, especially noticeable when the diarrhœa was very acute,

shreds or bloodstained mucus being seen in the dejecta. Auscultation of the chest revealed nothing very definite in the shape of râles, but there was a general dulness on percussion manifest.

Diagnosis.—"Pseudo-tubercular enteritis," or "what"?

Prognosis.—Unfavourable.

Treatment.—Isolated dog, and kept it under observation for some time; dosed for worms; animal passed a few. Gave internally diarrhœa tablet triturates (Parke, Davis and Co.), opium, camphor, pulv. ipecac., and lead acetate, which had the desired effect; afterwards lactated pepsin (P. D. and Co.) to act as a digestive agent, followed on by creosote and Angier's petroleum emulsion, and finally stomachic tonics (ferri carb., sacch. and nux vomica, cinnamon, bismuth carb.), powders in food.

Diet.—Glaxo, barley water, raw meat (minced), tripe, cooked in milk, cod-liver oil biscuits, boiled rice.

Result.—Dog improved wonderfully, gained flesh, and was returned to owner, but am afraid the apparent recovery is only temporary and disease will return.

Remarks.—I have never seen a similar disease in a dog before, but have met with several cases in cattle, also cases of tuberculosis in "bulldogs," so have recorded these few notes, thinking the case may be of interest to others. I shall be glad to hear if any other canine practitioner has met with a similar case.

Translations.

CONTRIBUTION TO THE KNOWLEDGE OF PROGRESSIVE BULBAR PARALYSIS OF THE HORSE.

By OSCAR BÜRGI.

Zurich.

UNDER the description of bulbar paralysis we understand a diseased condition which is characterized by paralysis throughout the extent of the so-called bulbar nerves. This paralysis involves the sixth to twelfth pair of nerves which arise in the medulla oblongata, formerly called the bulbus, on the floor of the fourth ventricle.

The combined paralysis has also been noticed in man, where it leads respectively to changes of the motor nerve substance of the hypoglossus, facialis, and vagoaccessorius.

As a result there occurs paralysis and atrophy of tongue, lips, and muscles of mastication, as well as of the ocular, gum, œsophagus, and laryngeal muscles. Disturbance of speech, difficulty in mastication and swallowing, increased secretion of saliva, and deficient reflex irritability are the clinical symptoms of the condition which may be accompanied by those of foreign body pneumonia. Similar paralysis occurs in our domesticated animals, and has been noticed in the horse and cow. As a result the diagnosis of bulbar paralysis has been frequently commented on in veterinary literature. As in man, so also in animals, two forms of the disease arise, namely, an acute and chronic. The former occurs in cattle, as several of our publications prove. Zschokke and other practitioners mention and describe an endemic paralysis of the œsophagus, or acute bulbar paralysis of cattle. This was characterized by marked paralysis of the tongue, absence of fever, cessation of rumination, and peristalsis. Progressive paralysis caused a high mortality.

Cases of acute bulbar paralysis have also been noted in the horse. Many authors refer to it. Every treatment proved unsuccessful. In the clinic here we had opportunity of noticing the malady in the horse.

A six-year-old gelding used for riding had been treated for an attack of catarrh. Body temperature, pulse, and breathing were normal. A tenacious discharge from the nose was present, with regurgitation of particles of food, salivation, and quidding. There was coughing and increased pressure susceptibility at the larynx and pharynx. By sharp friction applied at the lower parts of the neck the irritable cough ceased. The symptoms of regurgitation and dropping of food in balls continued, and so the horse was brought into hospital.

The animal was dull, but in fair condition. Temperature, pulse, and breathing normal. There was drooping of the left dorsal eyelid, and slight protrusion of the upper lip to the right. The left pupilar reflex was deficient and the pupil dilated. The mucosæ of the head were of normal colour, but a tenacious discharge from the right nostril was mixed with particles of food. There was increased sensitiveness to pressure in the region of the larynx and pharynx, as well as in the upper third of the trachea. No swelling of the glands of the head, sinus regions normal.

Examination of the mouth showed teeth and gums normal, but the oral cavity contained a large quantity of food mixed with saliva. Especially marked was the condition of the tongue. It could be very easily drawn from the mouth, and its point remained for some time protruding between the lips. The horse drank water, but regurgitated it, especially through the right nostril. Hay and straw were taken with avidity, but could not be swallowed, and by mastication movements were pushed into the left angle of the mouth. Balls of food as large as nuts and hen's eggs were deposited in the manger, and although the horse would seize and grind at long hay all day it could not swallow any, and so became gradually emaciated. Left-sided atrophy of the tongue became very marked and the paralysis of the facialis more accentuated. No treatment was of avail, and the patient was slaughtered after three weeks.

On section the sinuses of the head were normal; at the base of the tongue there was a large quantity of balled food. The tongue itself was at its left base totally atrophied. It felt quite soft, and the mucosa there was greatly wrinkled; the papillæ of the region were very prominent. The musculus styloglossus was devoid of muscular fibre, and only represented by a thin, pale-yellow cord. The musculus hypoglossus showed marked degenerative atrophy. The muscles of the right side of the tongue appeared quite normal to the naked eye.

In most cases already recorded a double-sided paralysis has been noticed. Here it was limited to the left side. Whether ætiologically the origin of the infection was due to the catarrh is not certain. Generally, food poisoning and infectious material are considered to be the cause of bulbar paralysis.

G. M.

CLINICAL CASES.

(1) Carcinoma of the Suprarenal Bodies in the Horse with Hæmorrhage into the Abdominal Cavity.

A horse suffering from stoppage died five hours after being attacked with symptoms of internal hæmorrhage. On *post-mortem* a tumour double the size of a man's head was found in the left kidney region, involving the left kidney, in which there was a rent 3 cm. long. The abdominal cavity contained 12 litres

of fluid blood, and in the folds of the mesentery there were six fresh blood clots as large as one's fist. The tumour could be recognized as a greatly changed carcinomatous left suprarenal body.

(2) Amyloid Liver in the Horse, with Rupture of the Organ and Internal Hæmorrhage.

As a result of rolling and falling down, especially in cases of colic and where there is an amyloid liver, rents in the parenchyma of the organ occur. Such a case came about in a horse with colic which, after half an hour, died of internal hæmorrhage. Because icterus was absent clinically amyloid liver was not suspected, but a rupture of an abdominal organ. On rectal examination roughnesses on the intestinal mucosa could be felt which were attributed to particles of food, but which proved to be due to blood clots. The liver weighed 15 kilograms, and showed friable, soft consistency and greyish brown and brownish yellow colour. In the right lobes of the liver there were two rents. Liver, spleen, and kidneys showed amyloid degeneration. The cause of the degeneration was not evident.

(3) Suprascapular Paralysis as a Result of Callus Formation after a Healed Shoulder-blade Fracture.

Since the summer of 1912 a horse previously lame in the left shoulder showed suprascapular paralysis. The horse died of colic, and on *post-mortem* there was a doubly thickened lower third of the scapula covered with irregular jagged bony growths which completely enclosed the suprascapular nerve. The muscles at the back of the shoulder-blade were atrophied and degenerated.

(4) Treatment of Stenosis of the Œsophagus with Arecolin.

In 1896 Fröhner recommended the injection of arecolin for foreign bodies in the œsophagus and to await œsophagotomy. Since the outbreak of War dry and damp cut roots have been fed in increased quantities to horses, and numerous cases of obstruction of the œsophagus have occurred. In such cases arecolin has given relief. In one case $\frac{1}{5}$ of a gramme of arecolin injected into a horse caused it to cry out with pain, but after a few hours the obstruction had gone, and the cry was attributed to a very painful contraction of the œsophagus on the fixed and sharp-pointed piece of root.—From *Swiss Journal of Veterinary Medicine*.

Abstract.

GASEOUS CYSTS IN THE MESENTERY OF A PIG.

By J. B. CLELAND, M.D., Ch.M.

Under the term "Mesenterial Emphysema of Hogs," Ostertag ("Handbook of Meat Inspection," 3rd edition, p. 288) describes and illustrates this interesting condition. He points out that authorities differ as to its origin, some believing that it is due to the formation of gas by micro-organisms, and others that it is due to some other cause.

In July, 1911, specimens from a pig affected with this disease were submitted for examination. The mesenteric attachment of the small intestine was filled with congeries of many small gaseous cysts, some as large as peas, and others smaller. Besides filling the mesenteric attachment, they extended in a wedge-shaped way about half an inch into the mesentery. Here and there some of the small cysts were pedunculated, and occasionally attached to the ends of cysts were small dark masses, apparently consisting of smaller cysts filled with altered blood. One large cyst was seen which was definitely filled with clotted blood. Sections showed that the cysts appeared to be lined by elongated connective tissue cells several layers deep, forming a fibrous tissue wall. There were numerous eosinophile cells in the mucous membrane. No giant cells were met with. The specimen was preserved in formalin. The gas was afterwards collected from some of the cysts and examined by my colleague, Mr. Darnell-Smith. He could find no evidence of the presence of carbon-dioxide, but showed that the gas, as present in the preserved cysts, consisted of oxygen and nitrogen in the proportion of 1 to 7 approximately. The absence of carbon-dioxide was indicated by the failure of a solution of caustic soda to absorb any of the gas during the period of one hour. By means of an alkaline solution of pyrogallic acid, the bulk of the gas was diminished by about one-eighth after twelve hours. The remaining gas was non-inflammable, and would not support combustion, and was presumably nitrogen. These results agree in general with those quoted by Ostertag. This presence of oxygen and nitrogen in the cysts seems to me to suggest an origin from the gases normally in solution in the body fluids rather than from the action of some invading organism. The condition would well repay the attention of the physiological chemist.—*Report Government Bureau Microbiology, New South Wales.*

Reviews.

Medical and Veterinary Entomology. By William B. Herms, Professor of Parasitology in the University of California; late Professor of Zoology and Parasitology in the San Francisco Veterinary College. Published by the Macmillan Co., New York, 1915. Pp. 393; illustrations 228. Price 17s. net.

There is no branch of medical science that is more important than the study of the part that insects and arachnids play in causing and transmitting disease in man and beast. We think also that there has been no greater advance made in any field of veterinary and medical work than in that of entomology. The immense literature on the subject, however, has been widely scattered and not always easily accessible. This book brings a big area of the field lucidly into view, systematizes much of the present knowledge of this special sphere, and as it is written by a man eminently able to deal with the matter, it may be accepted as a reliable text-book for students and a trustworthy handbook for the use of physicians, veterinarians, and public health officers. Apart from the loss which insects and insect-borne diseases cause to the community, the study of insect life history and control is very valuable and essential in the interests of preventive medicine and public health. The transmitters of malaria and yellow fever need constant war waging against them, and if we in this country know practically little of their ravages, yet we can directly appreciate an account of the scientific measures to be taken in combating a plague of house-flies, cockroaches, fleas, or bed bugs, and we can learn how to act in these cases from the instructions of the author.

The book is especially strong on the subject of mosquitoes, the house-fly, and myiasis (a term referring to the presence of and resultant disturbance traceable to insect larvæ). Concerning these larvæ there is an interesting note on warbles in human beings, and in one case mentioned the maggot of hypoderma lineata travelled from just below a boy's left knee to the back of his ear.

The importance of mosquito control is dwelt on fully, and the methods to be adopted to cope with the pests are described; in some cases the breeding grounds in the shape of stagnant pools have had to be obliterated, and pouring oil on the surface of the water is another measure that is regularly taken. These pages are very interesting reading, and here we learn how bats, gold fish, roach, minnows, and dragon-flies compass the destruction of mosquito life and aid human effort.

There has been a widespread outcry recently in this country which crystallized in the words "Kill that fly." We have read

nothing more masterly than the instructions given in this book for carrying out the procedure. The idea that the house-fly is one of Nature's scavengers is shown to be almost entirely false; it is really a very poor scavenger. On the contrary, there is very good evidence to show that it is responsible for the spread of such diseases here as typhoid fever, tuberculosis, dysentery, and infantile diarrhœa, and abroad Asiatic cholera, frambœsia, and ophthalmia.

There are excellent chapters on blood-sucking muscids (one of which is suspected of causing poliomyelitis), ticks, mange mites, venomous insects, and arachnids.

The volume throughout is full of good illustrations, most of which are original. The author is to be congratulated on producing such a serviceable and useful text-book, and the publishers deserve all praise for their share in the work. By reason of the ground it covers, the way it has been compiled, the nature of its dealings with a special field of science none too well explored yet, or discussed previously, the work should become an indispensable classic to all those interested in medical and veterinary entomology. G. M.

Essentials of Veterinary Law. By Henry Bixley Hemenway, A.M., M.D., Fellow of the American Academy of Medicine. Author of Legal Principles of Public Health Administration. Veterinary Medicine Series No. 10. Cloth bound, pp. 290. Edited by D. M. Campbell, D.V.S. Published by the *American Journal of Veterinary Medicine*, Chicago.

This, the tenth volume of the Veterinary Medicine Series, breaks somewhat new ground in veterinary literature. We have had the "Law of Horses" and the legal aspect of the examination of horses as to soundness put before us long ago, but we know of no special book devoted solely to law as it affects the veterinary surgeon personally and in his work altogether.

It is rather a delicate matter for a man who is not a lawyer and who has not made a special study of the law (or, in other words, who is not an expert) to pose as an authority on legal matters as they affect us, but as far as we can make out the advice given in this book is helpful and fairly sound. As it relates chiefly to American law, which is not so old in precedents as our own, and varies greatly, we believe, in different States, then if the author takes a wide and comprehensive enough outlook and bases his conclusions logically on a sufficiency of legal records accessible to him, there is no doubt that his words will be valuable and carry weight, even if only comparatively. Hence we note primarily that references have been consulted and are made on nearly 800 cases that have been decided in the American Law Courts, and conclusions are founded on these. In many instances, however, these cases refer to decisions in respect to the medical profession, which are assumed to be also applicable to us. The veterinary profession in every land is comparatively

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a small one, consequently judicial decisions affecting us directly are somewhat scanty.

The book is divided into four main parts, dealing with Legal Principles, Law pertaining respectively to Veterinary Practice, Governmental Control, and Animals generally. The veterinary surgeon who acts as bailee may gather a fair idea of what his rights and responsibilities are from the pages on "Bailment." The lines on Contract and Lien are important, and the man who is called in a hurry to a street accident may learn how to act circumspectly if he wants to be paid for his services. We consider the book to be scrappy and not explanatory enough in some parts, and notice this chiefly in the pages dealing with meat inspection and the examination of horses as to soundness. Although the constitution of a contract and the duties and rewards attached to a faithful carrying out of its principles are discussed and the matter of compensation is fully dealt with, yet we see no reference to the rights, privileges, and responsibilities of the parties to *a formal contract*, verbal or otherwise. Many veterinary surgeons have verbal contracts for attendance and medicine to animals, although similar procedure is "rara avis" in the medical profession. Few men are wholly acquainted with the ins and outs of these instruments; many suffer injustice quietly under them. The law relating to Governmental inspection will be more important to Americans than to us. There are some interesting lines, however, on unforeseen serum injection sequelæ. These read: "If after the use of serum septicæmia breaks out among the animals the veterinarian may be morally certain it was due to the serum used; but the company will be just as sure that it was due to the operator's lack of care. A reserve package of serum kept properly cold will be the means of demonstrating the truth. Without this evidence his own reputation as a veterinary surgeon may be lost, and he may be held in civil damages." Although the book discusses American law in the main, yet much of the matter seems applicable to us here. We like the book, and consider it trustworthy if read with discernment. It ought chiefly to help us from becoming entangled in legal proceedings against ourselves. It is certainly interesting, instructive, and novel, and we admire the author's pluck in writing such a book without a precedent to guide him. We sincerely wish, however, that there was more literary activity among veterinary surgeons here, and that we had an up-to-date treatise on the subject of veterinary law written by a man holding both the legal and veterinary qualifications. G. M.

Board of Agriculture and Fisheries—Special Leaflet No. 64. The Rearing of Chickens.

This is a very valuable and important little leaflet that can be studied with profit by all poultry rearers. The need for bracing up and encouraging the poultry industry in this country is great, but unless there is a thorough understanding of methods

of rearing and feeding, disappointment and lack of progress and enthusiasm will lay hold of beginners in fowl keeping and so check any increase in an important food supply operation. As in human affairs, the loss of babes is primarily due to faulty diet and management, so in animal and fowl-rearing matters the great death-toll occurs in early days, and can be largely avoided and considerably lessened if the teachings of science are followed at the critical time. There is nothing superfluous about the leaflet. It is plain, straightforward, and lucid. It is well written and well arranged, and deals with the management and feeding of chicks up to the eighth week. In some cases perhaps the food bill might be varied and cheapened. We see no mention of dari; bran is dear now, and grain food is often cheaper than biscuit meal. We are quite in the dark as to the authors of the Board of Agriculture leaflets. It is a pity for veterinary science that we do not get any clinical material from the Board of Agriculture staff. The man who has written this leaflet on chicken rearing has done good service to, and is a true benefactor of, his country. If the leaflet is used and circulated as it ought to be, the results achieved will far outweigh any trouble and expense incurred in its production. G. M.

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